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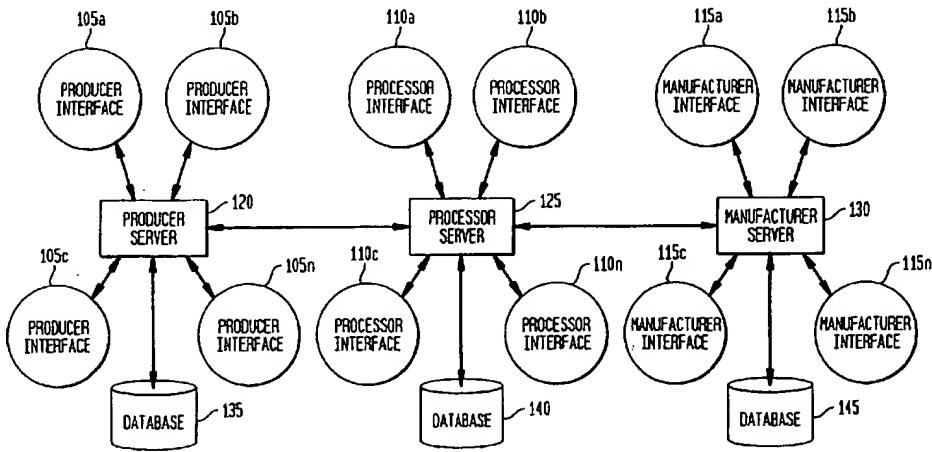
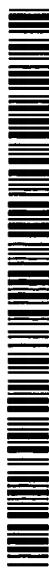
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(54) Title: TRANSACTIONAL SUPPLY CHAIN SYSTEM AND METHOD



100

(57) Abstract: A supply chain system including a first interface operable to allow a first individual to input first information associated with an item (105a) and a second interface operable to allow a second individual to input second information associated with a first processing of the item (110a), wherein the first interface and the second interface are coupled to each other via a network connection (100). Further, a method for tracing an item as the item progresses along a supply chain including associating first information with the item at a stage in the supply chain and associating second information and the first information with another item including the item at another stage in the supply chain.

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TRANSACTIONAL SUPPLY CHAIN SYSTEM AND METHOD

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Field

The present application generally relates to a transactional supply chain system and method and, more particularly, to a system and method for allowing 10 transactions to occur at and between one or more stages along a supply chain while communicating these transactions to one or more participants in a real-time manner and for enabling the participants to trace the history of a product along the supply chain.

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Background

Producers, such as farmers, can subscribe to a grower-based system. A grower-based system enables a farmer to input information relating to the farmer's 20 fields and crops. Such information can include what varieties of a crop are being grown, the quantity of the crops being grown, the location of the crops, any inputs

applied to the crop and any farm technique to encourage growth or control weeds and insects. The grower-based system allows the farmer to manage the farm better, for example, to enhance the farm's yield. However, a
5 variety of difficulties still exist for the farmer to gain value for the crop or livestock. These difficulties lie in limited information flow and market signals limited mainly to price and yield, with multiple tiers used in moving a product to market, the farmer is
10 removed from understanding and coordinating inputs with value traits wanted by end-users, coordinating livestock needs with markets, and environmental and food safety compliance/traceability. A farmer, unless contracted, relies primarily on price markets to sell a harvest.

15 Once a crop is grown and harvested, the crop is stored, then transported to a processor that processes the crop. The processor is also faced with difficulties, including few information links with raw material producers beyond buy and sell relationships,
20 unwanted, undesired or unmet commodity quality traits, inefficiencies due to a multi-tiered structure and inconsistency of supply, lack of information on how desired crops are grown and how to efficiently source the crops, excess inventory caused by lack of real-time

data, poor verification and safety traceability which can lead to serious safety issues as seen with Mad Cow Disease and Starlink issues, loss of product efficiencies due to lack of trait consistent traceable 5 identification, environmental and food safety compliance, and, therefore, makes verifying brand claims difficult and creating new products from known ingredients harder.

Further, individuals or companies within a supply 10 chain traditionally have been transacting business on a one-to-one basis, that is, communicating via telephone, fax, e-mail or in-person requirements, logistics, and terms for a purchase or sale to take place. For example, a producer wanting to do business with a first 15 stage processor transacts business on a one-to-one basis with the first stage processor. In addition, the first stage processor transacts business with producers and manufacturers on a one-to-one basis or through some form of a buying group. The manufacturers then transact 20 business with retailers, wholesalers, distributors, or other end-users who get products into the hands of consumers.

There is a need for a system and method that allows an individual or company within a supply chain to

transact and manage business with one or more other individuals or companies within or outside the supply chain from a single web-based environment so that a collaborative supply chain can be created. Further,
5 what is needed is a system and method for tracing ingredient history of products using the single web-based environment.

Summary Of The Invention

10 An aspect of the present application provides for a supply chain system, including a first interface operable to allow a first individual to input first information associated with an item, and a second interface operable to allow a second individual to input
15 second information associated with a first processing of the item, wherein the first individual and the second individual can access the inputted first information and the inputted second information via a network connection. Another aspect of the present application
20 provides for a supply chain system. The supply chain system includes at least one producer interface operable to allow at least one producer to input first information, a producer server coupled to the at least one producer interface for processing the first

information associated with an item, a producer database coupled to the producer server for storing the first information, at least one processor interface operable to allow at least one processor to input second information, a processor server coupled to the at least one processor interface for processing the second information associated with the item, a processor database coupled to the processor server for storing the processed second information, at least one manufacturer interface operable to allow at least one manufacturer to input third information associated with the item, a manufacturer server coupled to the at least one manufacturer server for processing the third information, and a manufacturer database coupled to the manufacturer server for storing the processed third information, wherein the producer server, the processor server and the manufacturer server are coupled to each other via an Internet connection.

A further aspect of the present application provides for a method for facilitating at least one transaction between a first individual within a supply chain and a second individual within or outside the supply chain, including networking a plurality of individuals within or outside the supply chain together

in a single web-enabled environment, the plurality of individuals including the first individual and the second individual, and routing transactional data between at least the first individual and the second
5 individual.

A still further aspect of the present application provides for a method for tracing a first item and a second item including the first item as the first item and second item progress along a supply chain. The
10 method includes associating first information with the first item at a stage of the supply chain, and associating second information and the first information with the second item including the first item at another stage of the supply chain.

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Brief Description Of The Drawings

Fig. 1 shows an exemplary embodiment of a transactional supply chain system;

Fig. 2 shows an exemplary embodiment of a supply chain;

20 Fig. 3 shows an exemplary embodiment of a web page viewed by a producer within a supply chain;

Fig. 4 shows an exemplary embodiment of a web page viewed by a producer within a supply chain;

Fig. 5 shows an exemplary embodiment of a web page viewed by a first stage processor within a supply chain;

Fig. 6 shows an exemplary embodiment of a web page viewed by a manufacturer within a supply chain;

5 Fig. 7 shows an exemplary embodiment for tracing the history of a product;

Fig. 8 shows an exemplary embodiment for tracing the history of a product;

10 Fig. 9 shows an exemplary embodiment for tracing the history of a product;

Fig. 10 shows an exemplary embodiment for tracing the history of a product;

Fig. 11 shows an exemplary embodiment for tracing the history of a product;

15 Fig. 12 shows an exemplary embodiment for tracing the history of a product;

Fig. 13 shows an exemplary embodiment for tracing the history of a product;

20 Fig. 14 shows an exemplary embodiment for tracing the history of a product; and

Fig. 15 shows an exemplary embodiment for tracing the history of a product.

Detailed Description

Fig. 1 illustrates an exemplary embodiment of transactional supply chain system 100. Even though the following exemplary embodiments are explained with reference to the crop wheat and to a supply chain including a producer, such as a farmer, a first stage processor, such as a mill, and a manufacturer, such as a bakery, the present application can be applied to other items, for example, other varieties of crops, livestock, farm inputs, machinery products, and a host of other products or services used in the business of farming, processing, or distributing of agricultural products and food. In alternative embodiments, additional processors and corresponding processing stages can be incorporated into transactional supply chain system 100. Moreover, the present application is not limited to producers, processors and manufacturers, rather other stages can be included in transactional supply chain system 100 having respective interfaces, such as one or more stages including seed companies, one or more stages providing storage and/or one or stages including companies providing inputs, for example, fertilizers.

Fig. 2 illustrates an exemplary embodiment of a supply chain 200 including various participants, such as

producers 210, storage or elevator facilities 220, first stage processors 230, manufacturers 240 and end-users 250. In the exemplary embodiments of the present application, participants can be either individuals or 5 companies within or outside a supply chain. The participants of the supply chain 200 transact and manage business in a single web-based environment. As a result, in an exemplary embodiment, information can be shared up and down the supply chain 200 by all 10 participants forming a collaborative supply chain and one or more participants can trace the history of one or more items or other items included therein.

Transactional supply chain system 100 shown in Fig. 1 includes one or more producer interfaces 105a...105n, 15 producer server 120, database 135, one or more processor interfaces 110a...110n, processor server 125, database 140, one or more manufacturer interfaces 115a...115n, manufacturer server 130 and database 145. In an exemplary embodiment, producer interfaces 105a...105n, 20 processor interfaces 110a...110n and manufacturer interfaces 115a...115n are one or more web pages and are coupled to their respective servers via a wireless or land-line Internet connection. Producer server 120, processor server 125 and manufacturer server 130 are

coupled together such that an individual using any interface within transactional supply chain system 100 can gain access to any information stored on each database 135, 140, 145, creating a series of private networks based on the collaborative workings of all participants. In an alternative embodiment, individuals are restricted from gaining access to particular stored information. Transactional supply chain system 100 including three separate servers coupled to respective databases is merely illustrative. Accordingly, more or less servers and databases can be utilized and arranged in a variety of configurations, for example, a single central server coupled to one or more databases can be used in transactional supply chain system 100.

As shown in Fig. 1, producer interfaces 105a...105n are coupled to database 135 via producer server 120. A producer, for example, a farmer, inputs crop information relating to one or more crops, such as wheat, into database 135 via the respective producer interface 105a...105n. In an exemplary embodiment, crop information includes planning data, pre-planting soil preparation data, data indicative of the varieties of wheat being grown, data indicative of the quantity of wheat being grown, data indicative of the location of the wheat,

inputs data such as crop chemicals or other treatments, planting data, crop growth and monitoring data, including but not limited to environmental monitoring data, harvesting data, transport data, financial data, 5 and transfer and storage data. Other data can be inputted and stored as well. Further, each farmer can input information such as whether the wheat is genetically modified, organic and kosher and what pesticides have been used.

10 A first stage processor, for example, a mill, using one of processor interfaces 110a...110n has access via the Internet to database 135 having stored therein data inputted by one or more farmers. In an alternative embodiment, a manufacturer, such as a bakery, and/or 15 other participants within or outside the supply chain 200 can also access data stored in database 135. In an exemplary embodiment, each processor can only access data stored in database 135 associated with farmers that have granted the processor permission. In a further exemplary embodiment, a farmer can limit which data 20 particular processors can access. For example, a farmer may grow and harvest multiple varieties of wheat and limit a particular processor to accessing information

about only one of the varieties or about only some of the fields where crops are grown.

Once the wheat is grown and harvested, the wheat is thereafter transported first to storage, for example, an 5 elevator, and then, upon being purchased, to a processing facility, such as a mill, for processing the wheat to flour. A processor using one of processor interfaces 110a...110n inputs information into database 140 via processor server 125. In an exemplary 10 embodiment, the information includes planning data, wheat storage data, milling data, such as moisture and protein level, kernel size, flour storing data, packaging data, data indicative of yields in production, finished product storage data and shipping data. Other 15 data can be inputted and stored as well. A manufacturer, such as a bakery, using one of manufacturer interfaces 115a...115n can then access the information about the flour stored in database 140 via the Internet. In an exemplary embodiment, the 20 manufacturer can only access information stored in database 140 associated with processors that have granted the manufacturer permission. In a further exemplary embodiment, a processor can limit which information the manufacturer can access. For example,

the processor may only allow a manufacturer to view moisture level data or lot specifications associated with the processing of a particular variety of wheat or wheat recipe from specific storage containers made for 5 their exclusive use. In an alternative embodiment, a producer using one of producer interfaces 105a...105n can also access information stored in database 140.

After the item is processed, for example, after the wheat is processed into flour, the wheat is purchased by 10 a manufacturer, such as a bakery, via one of manufacturer interfaces 115a...115n to convert the flour into dough and then into a finished product. A manufacturer using one of manufacturer interfaces 115a...115n inputs information into database 145 via 15 manufacturer server 130. In an exemplary embodiment, the information includes performance data, for example, data indicative of whether the finished product met specifications, quality data, for example, how a finished product scores, referred to as bake score data, 20 and yield data. Other data can be inputted and stored as well. A producer and/or a processor using one of producer interfaces 105a...105n and/or one of processor interfaces 110a...110n, respectively, can then access the information about the flour, dough and/or finished

product stored in database 145 via the Internet. In an exemplary embodiment, the producers and/or the processors can only access information stored in database 145 associated with manufacturers that have granted the producers and processors permission. In a further exemplary embodiment, a manufacturer can limit which information the producers and the processors can access. For example, the manufacturers may only allow one or more producers and/or one or more processors to view certain data associated with particular lots of finished products.

Transactional supply chain system 100 enables a processor and/or manufacturer to store less wheat and/or flour, respectively, due to the ability of looking down the supply chain to determine, for example, available inventory and types of inventory. Transactional supply chain system 100 also enables a processor and/or manufacturer to demand wheat and flour shortly before fulfilling pending orders.

In an exemplary embodiment, transactional supply chain system 100 also includes an inspection device, not shown in Figs. 1 and 2. The inspection device can be one or more individuals, such as independent third parties, who manually or through lab analysis perform

inspections. The inspection device inspects farmer fields, growing practices, processing and storage facilities and/or associated products. The inspection device can verify that information input into databases

5 135, 140, 145 is accurate. For example, an inspection will verify that "x wheat" is organic and does not use a particular pesticide. The inspection may be performed by an individual going to the farmer's facility to manually test the wheat, or it might be done from an 10 analysis device at the point of inspection or in the lab. In an exemplary embodiment, the inspection information is stored in a database that can be accessed via producer interfaces 105a...105n, processor interfaces 110a...110n and/or manufacturer interfaces 115a...115n.

15 In a further exemplary embodiment, a participant, which can be one or more individuals or companies, specifies points of entry along a supply chain where the participant wants feedback/verification information. For example, a participant, such as a bakery, can 20 specifies the desired feedback information such as inspection results at one or more producer fields, moisture and protein level of a certain variety of wheat or availability of key output traits tied to a specific product claim in a bakery's product, for example, having

more bran than other varieties of wheat. Once the feedback information is determined, the bakery can access the information stored, for example, in a verification database. In addition, the participant can

5 specify using, for example, a personalization engine, who in particular the participant wants to have access to specific information. For example, a farmer may only desire particular mills to be capable of viewing information about all or some of the farmer's crop.

10 Each participant has control over who can view what information associated with the respective participant.

Fig. 3 illustrates an exemplary embodiment of a home web page 300 viewable by a producer, such as a farmer, within supply chain 200. The layout and content

15 of the home web page 300 and other web pages associated with the home web page 300 are merely exemplary. The web page 300 enables the farmer to transact and manage many aspects of its business, as well as monitor the needs of other individuals and businesses. Even though

20 the exemplary embodiments are explained with reference to the crop wheat, the present invention can be applied to other varieties of crops, livestock, farm inputs, machinery products, and a host of other products or

services used in the business of farming, processing, or distributing of agricultural products and food.

The home web page 300 provides the farmer with many transactional and managerial abilities. In an exemplary 5 embodiment, by selecting crop inventory tab 310, the farmer can input information about its crops and inventory into, for example, database 135. The farmer has the ability to track the crop information from the time of planting through harvesting by field, by crop, 10 by characteristic of the crop and/or by storage area on the farm, and know where all of this information resides real-time. As a result, the farmer can track by an inventory number the total crop, harvesting, and storage information which can then be passed on to those seeking 15 to buy its crops.

Logistics tab 315 allows for the arrangement and management of any shipping of the farmer's crops to one or more of the farmer's customers or those who merchandise the farmer's crops, for example, to a 20 processing mill, and to a grain elevator. A number of shipping services can be utilized including, but not limited to, truck and rail services. Further, the logistics web page accessed upon clicking the logistics tab 315 allows the farmer to track shipments going out

and coming in, for example, by order lot number and customer. Logistics box 360 which is viewable on the farmer's home web page 300 lists some of the logistics items that are also viewable on the logistics web page.

5 These logistics items include contracts in transit, upcoming contract delivery dates and requests for authorization of particular contracts or they could include estimates from logistics providers for the cost of handling any of the farmer's logistic needs or
10 related services. In an exemplary embodiment, the logistics items viewable in logistics box 360 are the most timely or time sensitive items. For example, a particular contract may need shipping authorization that day or a notice may be posted that a contract is in
15 transit or have a need to be priced that day to make it to market in time to catch the price being offered. All other logistics items are viewable at the logistics web page.

In a further exemplary embodiment, the farmer can
20 input at the logistics web page that the farmer has a certain quantity, and quality, of a product to ship from a particular farm's storage, or from a grain elevator, that has rail or truck capacity to another location. The farmer could then send out the request for a bid or

contract with a known shipping service or ship according to an existing contract the farmer has.

Grain elevator tab 320 provides the farmer access to an elevator web page for conducting and managing 5 various aspects of business with one or more grain elevators. Aspects of business that can be conducted with a grain elevator through the elevator web page include ordering shipping to and from one or more grain elevators, monitoring what crop and how much of the 10 farmer's crop is stored at each grain elevator and making payments for storage. Moreover, the farmer has access to information about how the crop is being stored, for example, if certain quality traits are being preserved. Such traits include ensuring that organic 15 crops are stored in organic locations and GMO and non-GMO crops or other identity preserved items are stored into the appropriate respective storage locations. The elevator could also communicate all manner of market making information to the farmer enabling the farmer to 20 instruct the elevator on how to sell or hedge the farmer's crops.

First stage processor tab 325 provides the farmer access to a processor web page for conducting and managing various aspects of business with a first stage

processor, such as a flour milling company, who the farmer sells wheat to. In an exemplary embodiment, agreement information is viewable via the first stage processor tab 325. For example, the first stage 5 processor may have a need for five thousand bushels of a particular variety of wheat and that request is transmitted to one or more producers, the farmer being one. The producer can view that request via one of producer interfaces 105a...105n and respond by entering 10 into a contract, for example, for a thousand bushels of a particular wheat. Specifically, if the farmer can satisfy the first stage processor's needs, the farmer could enter into a contract with the first stage processor through a web site 400 accessed by the first 15 stage processor tab 325. The first stage processor's needs will thereafter adjust to four thousand bushels.

Figure 4 discussed below is an exemplary embodiment of the web page 400 viewed by the farmer upon clicking the first stage processor tab 325.

20 Flour mill B tab 330 provides the farmer access to another processor web page, for example, another first stage processor or a processor at a subsequent stage. In an exemplary embodiment, the functioning of this processor web page is similar to the functioning of the

previously discussed processor web page. In a further exemplary embodiment, there is a single processor tab that has a number of different locations or processors that the farmer can sell its product to.

- 5 Bank tab 340 gives the farmer access to a bank web page that allows the farmer to attend to its banking needs, for example, those needs arising out of transactions from elsewhere in the transaction supply chain system 100. For example, if the farmer stores its
10 wheat at a grain elevator, it can view at the bank web page accessible through the bank tab 340 the funds used to pay for such storage. Further, if the farmer sells its wheat to the first stage processor, the farmer can view the funds received from the first stage processor.
15 Also, if the farmer owes the first stage processor a payment, the farmer could through the bank web page accessible by clicking on the bank tab 340 put in a request to send the first stage processor the appropriate payment, as well as monitoring that the
20 first stage processor has already received the payment. Similarly, the farmer can have access to other services as well via the home web page 300, such as logistics, purchase of inputs and machinery repairs. Thus, bank tab 340 is merely illustrative of one of the services

that can be available to the farmer via, for example, the home web page 300.

Box 355 which is viewable by the farmer on the home web page 300 list hot items and/or action status. In an exemplary embodiment, hot items are business information that is at the top of a chronological hierarchy sorted by time date --the most time sensitive information. For example, if a certain contract is shipping that day, such information can be included in the appropriate place in the box 355. As a result, the farmer has a quick reference to items on which some action, for example, an acknowledgment, is useful to the farmer itself or others in transactional supply chain system 100. Note that item 3 in box 355 is the same as item 3 in logistics box 360 since it pertains to shipping information for that day which could be considered a hot item.

In an exemplary embodiment, the farmer can view each contract referred to on the home web page 300 or on any link from the home web page 300 by clicking on the hyperlink for that contract. In a further exemplary embodiment, the viewable contracts are images of the entire electronic signature contracts, as well as including summary information about, for example, the

kind of crop, the amount of the crop, where the crop is stored and the monetary particulars. For example, the farmer can click on a particular contract # and there may be certain text highlighted for the farmer to

5 confirm its approval or may ask the farmer to provide a missing piece of information if something is not filled out. Processor home web page 500 and manufacturer home web page 600 shown in Figs. 5 and 6, respectively, also provide the capability to view each referred to

10 contract. This allows the farmer to view the workings of each piece of its business without having to transverse several web sites of each supplier, buyer or provider of services.

In an exemplary embodiment, box 350 includes one or

15 more links. These links include home, hot items, markets, logistics, weather, agricultural ("AG") news, AG links, user profile and privacy. The hot items link would connect the farmer to a hot items web page containing all the items of business that need prompt

20 attention. Hot items are generated using a data sorting functionality that keeps the farmer's business sorted by date. However, any information can be pushed up to the top of the chronological list. In an exemplary embodiment, the farmer can make settings of how it wants

its hot items to be arranged so that if the farmer clicks on the hot items link the farmer will see everything that is in box 355 and box 360 plus additional items that may not be as pressing. Hot items 5 can also include a weather service warning, a crash in agricultural prices, a rise in agricultural prices and/or the sudden need of a customer to the farmer's specific crops.

The markets link in box 350 gives the farmer access 10 to a markets web page having agricultural market information. In an exemplary embodiment, the home web page 300 includes a portion of the agricultural market information, for example, wheat prices box 365 and farm market box 375. In a further exemplary embodiment, the 15 farmer can click on a portion of box 365 and box 375 to provide the farmer with more detailed market information. The agricultural prices are updated real-time or only after a certain predetermined amount of time.

20 The logistics tab in box 350 gives the farmer access to a logistics web page providing logistical, for example, shipping, information relevant to the farmer's business. The home web page 300 includes a portion of the logistical information in logistics box 360. The

logistics information in logistics box 360 includes the most pressing shipping items such as notice that a certain contract is in transit, a contract delivery date, a contract will ship that date and/or a contract 5 needs shipping authorization.

The weather link in box 350 gives the farmer access to a weather web page dedicated to weather information. In an exemplary embodiment, the weather information is restricted to weather conditions local to the farmer. 10 In alternative embodiments, weather conditions and news for other regions can be accessed and displayed as well. Further, the farmer can request more specific weather information for a particular location through the weather web page. The home web page 300 includes a 15 portion of the weather information available at the weather web page at weather box 370. In an exemplary embodiment, weather box 370 includes a listing of the current and short term weather forecast.

AG news link in box 350 gives the farmer access to 20 an AG news web page dedicated to current and/or past agricultural news and to agricultural news at web sites managed/hosted by others. AG links in box 350 also provides the farmer access to other agricultural-related web sites managed/hosted by other systems. User profile

link in box 350 gives the farmer access to a functional web page where the farmer can control the settings for all the various functions provided via home web page 300. User profile box 380 also allows the farmer to 5 access the farmer's account, view and/or change preferences, add and delete tabs, and configure weather. Privacy link in box 350 gives the farmer access to a web page providing information about a privacy policy.

It should be noted that the farmer, the processor, 10 the elevators and the manufacturer each can decide on the layout and informational content of the respective home web page through the use of a personalization engine whose purpose is to create a series of proprietary collaborative networks to enable the 15 effective value enhanced supply chain to benefit each of the participants. There are a variety of personalization engines that are well known in the art which can be used, such as Vantage Point™ for agricultural services. For example, the farmer may 20 decide that it does not want to view certain boxes or links on the home web page 300, but still have access to such information through other channels.

Figure 4 depicts the processor web page 400 accessible through the first stage processor tab 325 of

the home web page 300. Web page 400 provides information about business transacted between the farmer and the customer, the first stage processor. Tabs 310, 315, 320, 325, 330 and 340 are the same as those 5 discussed with reference to Fig. 3 and therefore are not discussed again.

Box 415 includes hot items that pertain to the first stage processor's transaction information regarding past, future and ongoing contracts. Hot items 10 can include an indication that a particular first stage processor contract needs a confirmation, funds have been received from the first stage processor for a particular contract, the first stage processor has sent funds for a particular contract, a contract is to ship that day 15 and/or a particular contract has been signed. Logistics box 420 includes the most pressing logistical information that only pertains to the first stage processor. Note that item 3 in box 415 is the same as item 3 in logistics box 420 since it pertains to 20 logistics information regarding a first stage processor contract that is time sensitive. Other features of the logistic tab 315 and the logistic box 420 were described above with reference to Fig. 3 and are not explained again.